

## **REMARKS**

Reconsideration of the application, as amended, is respectfully requested, in view of the following remarks.

Applicants enclose an abstract on a separate piece of paper. It is supported on page 2 of the specification.

The Office indicates that a sequence is disclosed on pp. 4-5 of the specification without a sequence identifier. However, the amendment mailed 5/11/01 included an identifier for this sequence. If the Office still believes that there is a deficiency, it would be appreciated if it could be pointed out more particularly. Applicants understand that the 5/11/01 amendments of the specification were entered. If this is not the case, please let us know.

Sequence identifiers have been provided individually for each element of claim 2.

Claim 20 has been canceled without prejudice in view of the formal rejection by the Office asserting claim redundancy. Claim 15 has been canceled without prejudice since it is not in preferred format for prosecution in the United States.

Claims 1, 2, 4, 11 and 18 have been amended to recite that the polypeptide is isolated as suggested by the Examiner. Claims 21 and 22 are newly added in view of the amendment to other claims reciting isolated polypeptides. Claim 21 is directed to a food product comprising a polypeptide having antifreeze activity comprising one or more fragments (A-E) of the amino acid sequence wherein the food product is a frozen confectionery product or a frozen vegetable with the proviso that the food product is

not a carrot. Claim 22 is directed to a method of producing a food product other than carrot comprising an antifreeze polypeptide, comprising the step of in situ production of said antifreeze polypeptide. These would not read on carrots with natural levels of the polypeptides.

Claim 11 was included in the group which was elected. Explicit dependency from the second claim, claim 10, has been deleted without prejudice.

Element (C) of claims 2 has been amended to replace what appears to be a typographical error wherein "X-LEU-" was omitted.

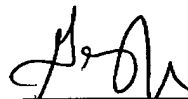
With respect to the rejection of claim 1, it should be mentioned again that claim 1 has been amended to recite that the polypeptides are obtained from carrots. The Office points to no indication in Griffith that carrots should be used for obtaining antifreeze polypeptides. Therefore, it is submitted that claim 1 is not anticipated by Griffith.

Furthermore, the undersigned has been informed that at least some of the polypeptides disclosed in Griffith lack antifreeze activity (see corresponding WO 98/04148 of record, example IX, which does not show a 36 kDa protein from winter rye with antifreeze properties). Present claim 1, by contrast, recites polypeptides having antifreeze activity. Therefore, the Office points to no disclosure of the presently claimed polypeptides in Griffith or of anything to suggest their antifreeze activity.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version With Markings To Show Changes Made.**"

In view of the foregoing it is respectfully requested that the application, as amended,  
be allowed.

Respectfully submitted,



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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

1. (Amended) Isolated [Polypeptides] polypeptides having antifreeze activity which [can be] are obtained from carrots and which have an apparent molecular weight on SDS-PAGE of 36 dKa and isoforms or derivatives thereof which still possess antifreeze activity.

2. (Twice amended) Isolated polypeptides [Polypeptides] having antifreeze activity comprising one or more fragments (A-E) of the amino acid sequence as follows:

[SEQUENCE ID NOS. 1-5, respectively, in order of appearance]

(A) LEU-PRO-ASN-LEU-PHE-GLY-LYS (SEQ ID NO. 1)

(B) ILE-PRO-GLU-GLU-ILE-SER-ALA-LEU-LYS (SEQ ID NO. 2)

(C) LEU-THR-X-LEU-ASP-LEU-SER-PHE-ASN-LYS (SEQ ID NO. 3)

(D) SER-LEU-ARG-LEU-SER-SER-THR-SER-LEU-SER-GLY-PRO-VAL-PRO-LEU-PHE-PHE-PRO-GLN-LEU-X-LYS (SEQ ID NO. 4)

(E) X-X-GLY-VAL-ILE-PRO-X-GLN-LEU-SER-THR-LEU-PRO-ASN-LEU-LYS (SEQ ID NO. 5),  
wherein X is any amino acid.

4. (Twice amended) Isolated [Polypeptides] polypeptides having antifreeze activity having an amino acid sequence as represented in SEQ ID NO. 7 and isoforms and derivatives thereof which still possess antifreeze activity.

7. (Twice amended) [Method] A method of obtaining polypeptides according to claim 2 whereby the polypeptide is isolated from cold acclimatised carrots.

11. (Twice amended) [A] An isolated polypeptide which has antifreeze activity that is immunologically related to the polypeptide of [claim2] claim 2 as determined by its cross reactivity with an antibody capable of specifically binding to said polypeptide [of claim 10].

12. (Twice amended) A food [Food] product comprising a polypeptide of claim 2 with the proviso that the food product is not a carrot.

14 (Twice amended) A [Method] method of producing a food product comprising an antifreeze polypeptide according to claim 2, comprising the [steps] step of  
(a) adding to the food product a composition comprising said antifreeze polypeptide[;  
or  
(b) in situ production of said antifreeze polypeptide.]

18. (Amended) [A] An isolated polypeptide that is immunologically related to the polypeptide of claim 2 as determined by its cross reactivity with an antibody capable of specifically binding [the] said polypeptide [of claim 2].

19. (Amended) A food [Food] product comprising a polypeptide according to claim 2 with the proviso that the food product is not a carrot containing the polypeptide at naturally occurring levels.

21. (New) A food product comprising a polypeptide having antifreeze activity comprising one or more fragments (A-E) of the amino acid sequence as follows:

(A) LEU-PRO-ASN-LEU-PHE-GLY-LYS (SEQ ID NO. 1)

(B) ILE-PRO-GLU-GLU-ILE-SER-ALA-LEU-LYS (SEQ ID NO. 2)

(C) LEU-THR-X-LEU-ASP-LEU-SER-PHE-ASN-LYS (SEQ ID NO. 3)

(D) SER-LEU-ARG-LEU-SER-SER-THR-SER-LEU-SER-GLY-PRO-VAL-PRO-LEU-PHE-PHE-PRO-GLN-LEU-X-LYS (SEQ ID NO. 4)

(E) X-X-GLY-VAL-ILE-PRO-X-GLN-LEU-SER-THR-LEU-PRO-ASN-LEU-LYS (SEQ ID NO. 5),  
wherein the food product is a frozen confectionery product or a frozen vegetable with  
the proviso that the food product is not a carrot, wherein X is any amino acid.

22. (New) A method of producing a food product other than carrot comprising an  
antifreeze polypeptide, comprising the step of:

in situ production of said antifreeze polypeptide.